

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

21-05-2004

PCT 01 JUN 2005

To:

TURUN  
PATENTITOIMISTO OY

see form PCT/ISA/220

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/FI2004/000004

International filing date (day/month/year)  
08.01.2004

Priority date (day/month/year)  
08.01.2003

International Patent Classification (IPC) or both national classification and IPC  
C07D233/54

Applicant  
OY JUVANTIA PHARMA LTD

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. *ILC ISA - vastine: 22 ktk eo - postin 8.11.04/16*

For further options, see Form PCT/ISA/220. *PCT/ISA/220 + 3 ktk 21.0.04/16*

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	1-12
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Box No. VI Certain documents cited**

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1. Certain published documents (Rules 43*bis*.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

**see form 210**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**Novelty (Article 33(2) PCT)**

The subject-matter of claims 1-12 is novel.

**Inventive Step (Article 33(3) PCT)**

The subject-matter of claims 1-12 is considered to involve an inventive step with respect to Article 33(3) PCT.

The closest prior art document for claims 1-10 is considered to be document D2. Document D2, which is cited by the applicant, discloses a process to prepare substituted imidazole compounds of formula I by halogenating an indane compound, followed by reaction with formamide to form the imidazole ring (see process B1 on page 5 lines 35-50).

The difference of this disclosure and the present application is that in the present application after the halogenation step, a reaction is performed with an amine  $R_4NH_2$  wherein  $R_4$  is an easily removable leaving group and an alkali metal thiocyanate to obtain a compound of formula IV of the present application, which is converted by first removing the mercapto group and removing the  $R_4$  group into the desired end-product.

Document D3, which is cited by the applicant, discloses a way to produce imidazoles by a reaction which involves a ring closure reaction mediated by potassium thiocyanate.

The problem to be solved by the applicant was to provide an alternative process for the preparation of compounds of formula I. Starting from document D2, he would not come to the solution of the present application, as the teaching in document D3 is first about simple imidazoles (and not about the compounds of formula I of the present application). In other words: there is no indication in D3 that the process for the preparation of imidazoles as outlined in D3 could be extended to the compounds of formula I of the present application. Secondly, the products obtained in the present application after the process as described in D3 (compounds of formula IV) have to undergo two more reaction steps to obtain the desired end-product, which involves inventive skill from the applicant. It is therefore considered, that the subject-matter of

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AUTHORITY (SEPARATE SHEET)**

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claims 1-10 is inventive over D2 and D3.

The subject-matter of claims 11 and 12 is considered inventive, as claims 11 and 12 are about a novel intermediate used in an inventive process. Therefore is this subject-matter also considered to be inventive.

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